

Table 3. Table 3. Mean scores of ATIEIS survey

Statements in ATIEIS	Gender		Experience of teaching SWD		Exposure to disabilities		Total Mean
	Female (35)	Male (62)	Yes (32)	No (65)	Yes (30)	No (67)	
General non-acceptable behavior: Students							
who fail in exams	3.73+	4.23+	4.25+	3.93+	3.87+	4.10+	4.04
who are shy & withdrawn	4.25+	4.50+	4.63+	4.31+	4.67+	4.30+	4.41
who have language difficulties	3.03+	3.34+	3.56+	3.06+	3.37+	3.20+	3.23
who are verbally aggressive in class	3.20+	3.72+	3.97+*	3.32+*	3.40+	3.62+	3.54
who do not follow school rules	3.43+	3.66+	4.00+*	3.37+*	3.73+	3.52+	3.58
who are frequently absent	3.20+	3.52+	3.46+	3.36+	3.17+	3.53+	3.40
who are inattentive in class	3.77+	3.92+	3.84+	3.87+	3.80+	3.90+	3.86
who physically harm others	3.57+	3.69+	3.81+	3.57+	3.77+	3.60+	3.65
Inclusion of SWD in classroom: Students							
with orthopedic disabilities	3.5+	3.75+	4.19+*	3.4+*	3.93+	3.53+	3.66
with visual impairments	2.79-	2.72-	3.41+*	2.46-*	3.03+	2.65-	2.77-
who are dependent on others for daily activities	3.00-*	3.79+*	4.16+*	3.18+*	3.73+	3.41+	3.50
with speech disabilities	2.86-	2.77-	3.37+*	2.52-*	2.93-	2.77-	2.80-
who display uncontrolled behavior	3.51+	3.90+	3.97+	3.66+	3.87+	3.71+	3.76
with learning disabilities	3.57+	3.29+	3.78+*	3.20+*	3.43+	3.36+	3.39
with hearing impairment	2.60-	2.64-	3.34+*	2.27-*	2.80-	2.53-	2.62-
with appropriate support, all students should be included	4.37+	4.40+	4.71+*	4.23+*	4.60+	4.20+	4.39
Effect of inclusion of SWD in classroom: Presence of SWD in classrooms							
does not make teaching/ learning stressful	3.28+	3.71+	3.91+*	3.38+*	3.60+	3.53+	3.56
does not affect the academic achievement of peers negatively	3.46+*	3.95+*	4.37+*	3.48+*	4.10+	3.64+	3.77
does not divert attention of teachers from peers	3.23+	3.48+	4.00+*	3.09+*	3.87+*	3.21+*	3.39
will be accepted by peers	3.31+	3.32+	3.28+	3.34+	3.23+	3.38+	3.32
Teachers can handle SWD (orthopedic)	3.20+	3.35+	3.62+	3.14+	3.47+	3.24+	3.23
Teachers can handle SWD (sensory + speech)	3.03+	3.26+	3.50+	3.01+	3.23+	3.18+	3.18

Note: In table 3,+ sign is for positive attitude; – for negative attitude; * for significant difference on t-test at .05 level.

3.76 ± 0.11). But, they were negative to inclusion of students with visual (M = -2.77 ± 0.15), hearing (M = -2.62 ± 0.13) and speech (M = -2.80 ±0.14) related disabilities.

The total mean values suggested the variation in teachers' attitudes with types of disability. The negativity in case of visual disability was offset by an extremely positive response to the statement, 'With appropriate support all SWD should be in regular classes' (M = 4.39 ± 0.08).

Comparing this contrast, it could be said that teachers' attitudes in a broader lens varied based on the type of disability, particularly more negative for visual disability, while positive attitude about the statement regarding additional support suggest that negativity might be toned down to some extent with right support.

The differing attitudes based on the type of disabilities might be related to teachers' dilemma about how SWD (and other students) would engage with instruction and the environment in inclusive setting and how their own instructional practices might get affected with whatever prior training they have received. To explore this idea further, we parsed how teachers' perceived dynamics in inclusive classrooms later.

Teachers were also positive that inclusion would not have negative effects; i.e. would not result in teaching/learning becoming stressful (M = 3.56 ± 0.11). The mean score suggested a positive attitude that inclusion of SWD would not affect the academic achievement of other students in class (M = 3.77 ± 0.12) and would not divert teachers' attention from other students (M = 3.39 ± 0.12). They also stated that SWD would be accepted by their students (M = 3.32 ± 0.11) and were also sure about their own ability to handle students with orthopedic disabilities in class (M = 3.23 ± 0.12), and students with sensory disabilities (M = 3.18 ± 0.13). These positive attitudes suggest that teachers in an inclusive setting would feel responsible for the whole class. Similarly, their positivity about acceptance of SWD by other students reflects their conscious expectation that peers also sense the shared responsibility of making a favorable environment for everyone in the classroom. The latter view was supported by teachers' reflections in the interview (discussed in later section).

T-tests indicated a significant difference in attitude of teachers with experience of teaching SWD as compared to one without on 15 of the 22 statements. These differences suggest that teachers without experience of teaching SWD will likely face a greater transition effect when regular classrooms transform to inclusive classrooms. Regarding exposure to disability in family/ friends, there were no significant differences in mean responses, except for one statement. Similarly, t-tests indicated very few significant gender differences with male teachers maintaining more positive attitudes (M = 3.95) about the effects of inclusion on the academic achievement of other children as compared to female teachers (M = 3.46, t statistic = 2.00, t {df} = 2.00, $p < 0.05$).

6. Interview analysis

6.1. A. Variation with type of disability

To understand the reasons shaping differing attitudes with respect to the type of disability, we parsed the instructional practices of teachers. A teacher (F) having no experience of teaching SWD held the notion that physical disability only limits students' movement inside the classroom; however, these students still actively participate in discussions on academic topics, so a class involving students having physical disability does not need any instructional changes. Similar views were expressed by teachers having experience of teaching students with physical disabilities. All teachers expressed some concerns about access to school, or to the play areas in school, yet it didn't alter their positivity about the inclusion of physically disabled students. In fact, one teacher mentioned that she had established a norm in her classroom regarding helping the physically disabled student in moving within the school campus.

"In my class, I have recommended them (peers) that they should help XXX (physically disabled student) by taking her to the play area during sports activities every day" (Teacher B)

Another teacher reflected on peers' supportive behavior towards SWD mentioning,

"Those physically disabled students having calipers (or leg braces) require taking extra care while getting up or sitting down. I have seen peers often help such students, may be on humanitarian grounds" (Teacher B)

We also noticed reflections suggesting the severity of physical disability could alter positivity (or negativity) of attitudes to some extent. A teacher having experience with SWD expressed that "access to classrooms" becomes a greater concern in such cases.

"I have orthopedically challenged students but I can take assistance of parents and school staff to help them to bring the students to my class on third floor.

However, it becomes difficult in case of those students whose body is partially paralyzed. For cerebral palsy case, access becomes even more difficult. We don't enroll such students" (Teacher A)

In a developing country like India, infrastructural changes may not necessarily be the top priority for accepting the philosophy of inclusion, and hence the above quotes encapsulate the complexity of inducting SWD in the school system.

However, as compared to orthopedic disability, teachers' having no experience with SWD have more

negative attitudes towards inclusion of visual and hearing disability students. A common remark was about "chaos" in the class when there are students with visual and/or hearing impairments. A teacher commented,

"... such children who are unable to hear or speak can learn only through behavioral techniques. I do not feel that he/she will be able to learn more than this" (Teacher F)

Non-experienced teachers associated type of disability with the diverse learning needs of SWD and had reservations about the instructional methods required as indicated in the quote above. However, teachers having experience with SWD had confidence in using and switching between technological devices as needed to facilitate instruction, we discuss this in detail in the following section

6.2. Technology in inclusive classroom

Teachers having experience teaching SWD felt that they could teach the same curricula to all students, including all types of SWD students, by simple instructional alterations achieved through technological support. According to these teachers, the curricula could be homogeneous, but the instructional mode could involve flexibility in inclusive classroom. One teacher expressed,

"...Sometimes I used audio tapes, sometimes I used Braille" (Teacher A)

Another teacher (Teacher B) with experience of teaching to SWD, insisted on making the devices readily available to all SWD students in the classroom.

Experienced teachers additionally relied upon peer support in making inclusive class more successful, and emphasized on educating all peers about different tools that SWD students might use in their classroom.

"Whenever I had students with hearing disability in my class, I made sure to provide the information about hearing aids to SWD as well as to other students. I have also suggested other children to experience the tool so that they are mentally prepared about what kind of help they can offer to SWD, so it naturally takes away the stigma associated with such aids/devices" (Teacher A)

"...if we bring these tools into the classroom then SWD students will learn more" (Teacher B)

"I have a particular system called induction loop in my class. When it is installed in any class, teacher can practically roam around anywhere in the class, and students can hear us clearly. These setups are provided by government to resource teachers, but it requires additional training" (Teacher A)

Experienced teachers portrayed how teachers could select appropriate teaching tools to assist their instruction. For instance, a visual aid including a picture, chart or book could be replaced with audio books, or other advanced technological tools with sound effects and some 3D gimmicks. Overall, inclusive classes are considered more equipped with a technology assisted environment, yet adaptations are made by anticipating support from teachers, peers, and SWD themselves. A few studies on inclusion have reported the effectiveness of audio books and multimedia presentations in an inclusive class [21], [22].

6.3. Concerns about adequacy of inclusive education training

Appropriate training is considered as an important factor for success of inclusion by all (SWD) experienced teachers. In our interviews, we heard a common concern from the experienced participants about inadequacy of training programs for novice teachers. Some expressed their worry about superficial coverage for inclusion related topics in the present teacher training courses; others expressed uncertainty regarding the effectiveness of short training courses.

We include two exemplar excerpts where teachers having experience with SWD, or exposure to disability, share their caution.

"All teachers are interested (in inclusion), it is just that getting sufficient knowledge about it is very important. In B.Ed. (Bachelor of Education) or D.Ed. (Diploma in Education) programs, there is no course of inclusion kind and so there is no possibility of knowledge about inclusion. The government has initiated short workshops where teachers are provided with some information about disabilities and some study material is also provided." (Teacher A)

"How can a general teacher teach when he does not have a familiarity with sign language? In this 5-day seminar, only minor things are covered. It may change mindsets regarding SWD children, but will not help in actually teaching them." (Teacher D)

The excerpts suggest that existing training (described as "limited" in terms of both content, and time) might keep the under-preparedness feelings amongst novice teachers unchanged even after undertaking the training. As a result, irrespective of teachers' willingness to adapt to inclusion, experienced teachers had their concerns regarding how current training does not prepare teachers for the practical task of teaching in an inclusive setting.

7. Discussions and Conclusions

In India, an initial transition from exclusion to integration has extended to inclusion, and is promoted through legislations, policies and educational support programs, yet policies alone do not ensure a smooth implementation of inclusion.

This study brings deeper understanding of teachers' attitudes and an influential factor (type of disability) shaping these attitudes in Indian middle school teachers' context.

We found significant differences in teachers' attitudes towards inclusion depending on the type and severity of disability; and among teachers with and without experience of teaching SWD. Similar results have been reported by de Boer et al. in the context of primary school teachers, although conducted in other part of world [23]. We did not find any gender bias in teachers' attitudes towards inclusion. This result resonates with findings reported by Parasuram [19], and Reusen et al. [17].

Despite the variety of different contexts, there are commonalities in teachers' attitudes about inclusion of specific type of disabilities worldwide. Anecdotal evidences are reported by Das (2013) in recent studies conducted using similar geographical context in India, although the type of disability is not explored to its fullest in the study [8]. Our results show such parsing in terms of type of disabilities is important to understand teachers' attitudes in a greater depth.

Combining the analysis of attitudes performed using "type of disability" lens on ATIEIS survey with the interviews, we unearthed positive and negative attitudes. The (SWD) experienced teachers were more positive towards inclusion of all SWD (including students with severe sensory and speech disabilities) in regular classes as compared to teachers who lacked such experience. Similar results have been reported by Prakash [12].

The interviews with (SWD) experienced teachers brought out the importance of specialized technological devices in inclusive classroom, some used by disabled students while others by teachers to cater to diverse learning needs of students through instruction. Teachers not only insisted on making these devices available for SWD, but equally providing a basic (at the least operating) knowledge of it to all students. They reflected that such initiatives bring ease in collaborative learning efforts among peers, as anxiety about the devices is eliminated and SWD receive direct benefits.

The technological aid helps teachers to maintain homogeneity in curricula in inclusive classroom such that all students essentially learn same topics, and SWD have greater ease in engaging with the curricula and classroom learning environment.

Another factor that came up in the teacher's interviews is their under-preparedness to deal with inclusive classrooms, and this was a major concern raised by teachers having experiences with SWD.

They were worried that despite a general readiness of novice teachers to make inclusive education successful, lack of specialized training could impede its practical implementation. Their observations regarding a lack of exposure to inclusion pre-service training, and even unsatisfactory in-service training in some cases could explain reservations of inexperienced teachers about inclusion.

For more effective teacher training, we recommend that teachers with prior experience of inclusive settings be involved in pre-service or in-service teacher training programs so that their positivity towards all type of disabilities and rich experiences with SWD and inclusive setting can be shared with novices.

Opportunities must also be provided to pre-service and in-service teachers to witness actual classrooms where inclusion is working successfully, thus giving scope to highlight best practices in inclusion and case studies of successful implementation in teachers' training curricula.

Suggestions made by experienced teachers, including technology equipped classrooms described in this study have evidential support in making inclusion successful in schools for all type of disabilities. This information will help novice teachers in planning effective inclusive practices. Despite the limitations of smaller sample of interview participants, this message depicting the (SWD) experienced teachers' unique aspects of instruction and philosophy is important for novice teachers, curriculum planners and teacher educators in India.

8. Acknowledgements

Authors would like to thank all the survey and interview participants involved in this study. We also thank anonymous reviewers for their feedback in the earlier version of this paper. We also thank the Design and Technology group members for their feedback.

Dr. Deepa Chari's research at Design and Technology Lab, Homi Bhabha Centre for Science Education, Tata Institute of Fundamental Research (HBCSE – TIFR) was supported by the Centre's short-term visiting research fellowship. Authors would like to thank Ms. Adithi Muralidhar for technical assistance.

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Appendix I (ATIEIS Survey)

On the blank line, please place the number indicating your reaction to every item according to how much you agree or disagree with each statement. Please provide a number for every item.

The level of agreement or disagreement as corresponding to each number is indicated as below:

Strongly agree (5);
Agree (4);
Disagree somewhat (3)
Disagree (2);
Strongly disagree (1).

Note: The term regular classes in the scale means the general classes which are taught by general teachers

1. Students who frequently fail in exams should be in regular classes.

2. Students who cannot move without help from others should be in regular classes.

3. Students who are shy and withdrawn should not be in regular classes.

4. Students whose speech is difficult to understand should be in regular classes.

5. Students who cannot read printed words and need to use Braille should be in regular classes.

6. Students who are verbally aggressive toward their peers should not be in regular classes.

7. Students who are dependent on others for daily life activities should be in regular classes.

8. Students who cannot speak and use sign language should be in regular classes.

9. Students who cannot control their behavior and disrupt the classroom activities should be in regular classes.

10. Students who need separate special classes in everyday reading and math skills should be in regular classes.

11. Students who cannot hear conversational speech should be in regular classes.

12. Students who do not follow school rules of conduct should not be in regular classes.

13. Students who are frequently absent from school should be in regular classes.

14. Students who are inattentive in class should be in regular classes.

15. With appropriate support all students with disabilities should be in regular classes.

16. Students who physically harm other students in school should not be in regular classes.

17. Students with disabilities may make classroom teaching and learning stressful.

18. In a regular class with students with disabilities, the academic achievement of other students may get badly affected.

19. In a regular class with students with disabilities, other students may not get proper attention.

20. Students with disabilities may not be accepted by other classmates.

21. Teachers may not be able to handle students with physical disabilities in a regular class.

22. Teachers may not be able to handle students with sensory disabilities in a regular class.